

FORMOSAN REFLEXES OF PAN NASAL/ORALS¹

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The P[roto]A[ustro]N[esian] nasal/orals, consisting of nasal + homorganic obstruent or spirant, correspond directly to similar elements in P[roto]M[iao]Y[ao] and have regular reflexes in P[roto]T[hai] (Benedict 1975: Introduction to Glossary). It is a puzzling fact, however, that these elements are poorly represented in all three groups of Formosan languages (East Formosan = Paiwanic, Atayalic, Tsouic). At the 'other end' of the AN domain, the P[roto]E[astern]O[ceanic] reflexes have presented a problem, but the reflexes worked out by Biggs (1965) appear to fit fairly well in the over-all A[ustro]T[hai] pattern:

TABLE 1

PEO. CONSONANTS AND THEIR PAN. AND PPN. CORRESPONDENCES

PAN	p	b	mp	mb	t	nt	d	D	nd	nD	l	r	s	z	c	j	Z	ns	nz	nc	nj	nZ
PEO	p		mp		t	nt	d		nd		l	r		s					ns			
PPN	f		p		t		r		l					s						h		

PAN	k	g	ŋk	ŋg	m	n	ñ	ŋ	w	q	R	h	y
PEO	k		nk		m	n		ŋ	w	?	R	ø	y
PPN		k			m	n		ŋ	w	?	ø	ø	(ø)

TABLE 2

ORAL AND NASAL GRADE REFLEXES OF PEO. PHONEMES

PEO.	*p	*mp	*t	*nt	*d	*nd	*s	*ns	*k	*ŋk
Fijian	v	b	t	d	r	dr	s	c	k	q
Samoan	f	p	t	t	l	l	s	ø	?	k
Tongan	f	p	t	t	ø	l	h	h	k	k
Maori	wh/h	p	t	t	r	r	h	ø	k	k
Saʔa	h	p/q	ø	d	r	d	t/s	d	?	k
Nggela	p/v	mb	t	nd	r	nd	s	h	k/g	ngg
Mota	v/w	p/q	t	t	r	r	s	s	k/g	q

Biggs, who distinguishes between oral 'grade' and nasal 'grade', points out that there are many doublets in the daughter languages (e.g. Fl. kari *scrape*, qari *scratch*) and that the correlation among cognates is imperfect. Many scholars, including Biggs (op cit.) and Haudricourt (1962), have speculated as to a possible underlying morphemic process, with the latter writer (Haudricourt 1965) specifically pointing to the rarity of this 'nasal grade' in Formosa as an indication of a relatively late origin for the feature. This would indeed represent a cogent argument for a late origin, given the generally archaic nature of Formosan phonology, were it not for the correspondences with nasal/orals or specific reflexes in the mainland AT languages; cf. the following table (from Benedict 1975):

TABLE 3

AUSTRO-THAI CONSONANTS (NASAL/ORAL AND NASAL)

AT	Indo- nesian	Form: East	Kadai [>Thai]	Miao-Yao
mp	mp/p	b	b	mp(h)
mb	mb/b	mb~m	mb~m	mb
m	m	m	m	m
nt	nt/t	nt~d	d	nt(h)
nd	nd/d	n	n	nd
n	n	n	n	n
nts	nt'/t'	dz	dz~z	nts(h)
ndz	nd'/d'	-	n	ndz
ns	nh	ns	n/z	s
nz	nd/d	n	n	ń

Table 3 (cont.)

AT	Indo- nesian	Form: East	Kadai [>Thai]	Miao-Yao
nc	ńk'/k'	-	j	-
nj	ńg'/g'	-	n	-
[ńś]	ń	-	z	ń~n
[ńž]	ńz	-	ńj[>ń]	-
ńy	ń	-	ńy[>ń]	-
ń	ń	ń	ń	ń
ŋk	ŋk/k	g	g	ŋk(h)~nts(h)
ŋg	ŋg/g	-	ŋ/ø	ŋg~ndz
ŋ	ŋ	ŋ	ŋ/ø	ń
Nq	(ŋ)k/k	ŋ~k	G[>ɣ]	Nq(h)
NG	ŋ(g)/g	-	N[>n]	NG~ŋg
N	-	-	N	ŋ

Further details are spelled out in an additional table from the same source (Benedict 1975):

TABLE 4

AUSTRO-THAI REFLEXES FOR ORALS AND NASAL-ORALS

Austro-Thai	*p	*mp	*b	*mb
Hova (IN)	f	(m)p	v	mb
Proto-Oceanic	*p	*mp	*p	*mp
Samoan (PN)	f	p	f	p
Dobu (SEP)	ø	b	ø	b
Tsou (Form.)	p	b	f	b
Pazeh (Form.)	p	b	b	m
Thai	*p	*b	*b	*m
Lao	p (h.t.)	p (l.t.)	p (l.t.)	m
Miao: PE	*p (h.t.)	*p (h.t.)	*p (l.t.)	*m
Yao: PY	*p (h.t.)	*b (h.t.)	*p (l.t.)	*b (l.t.)

As indicated in the above table, which makes use of the labial series by way of illustration, the P[roto]Y[ao] reflexes for P[roto]AT *mp and *mb parallel those of Tsou (Formosa) but with a tonal distinction, while the PT reflexes throughout are precisely those of Pazeh (Formosa). The material bearing on these reflexes in Tsou, Pazeh and other Formosan languages is in general very scanty, especially for the Atayalic and Tsouic groups. Atayal itself lacks nasal/orals and the few examples

(labials only) found in the related Sedik appear to be largely secondary; cf. Sed. *simburanan spear* (cf. Ata: Ci'uli dial. *sinbaʒanan*); *kəmpah work* (cf. *komopach*, id., cited by Bullock 1874); *?mpusal 20* (cf. Ata: Ci'uli *mapusal* < *ma/pusal); *səmpu count*, from *s/m/[i]pu[ɣ] (cf. Pai. *səmpu*, Bun. *maʒipul*). There is, however, one bit of evidence for Atayalic *b as the reflex of PAN *mp: cf. Ata: Ci'uli *bokwi the back*, *bukwi back/behind*; Sed. *bukwi the back; back/behind*, from *buku[r] via *bukui; IN *puŋku[r] *hind-part* (Ja. *behind*); PEO *mpuku: Fi. *buku pointed hind-end, tail* < PAN *(m)pu(ŋ)kur, a comparison greatly strengthened by the Pazehe cognate (below). Atayal also has the doublet *baŋ-lyeq ~ maŋ-lyeq hibiscus*, from *(m)ba[ɣ]u-; IN *baɣu = *(m)baɣu (Hova *varu* = *baru*), id. Initial *(N)q- is to be reconstructed for Atayalic for the following root: Ata. *qumah to work the field*, *qəmayah field (dry)*, from *q u m/a!ah (Ata. -y- < *-!-); Sed. *kəmpah* < *kumupah *work* (above), *kəmpahan field (dry)*, from *kumu[h]- < **Nqumu[h]- < *Nquma[h]- (vocalis assim. as in Rukai, below) < Atayalic *(N)qum[ah]; East Formosan *qumah and (Sai.) *qum/qumah *field (dry)*; also (Pax.) *quma/mah and (Ruk.) *qumu/umah [*< *qumah/qumah by assim.*], id.; also (Ami Sir.) *m/qumah *work*; IN *ʔuma *cultivated field*; PEO *ʔuma *garden; to work/plant/clear ground*; PPN *kumala *sweet potato (= the cultivated plant; contrast same infix form in Ata. = the cultivated land)*, from *kum/a!a < *Nqum/a!a[h]; PT *man *potato/sweet potato/yam* [generic term], from *[qu]ma!ah; PLi *mwai *sweet potato*, from *uma! < *[q]uma!ah < *[q]um/a!/[ah]. Finally, Ata. r < *d ~ *dz apparently reflects an earlier *nt in *pareq < *padiq intestinal worm*, from *pantiq < *pantiaq (regular Formosan shift); PT *tak*, id., from *[]tyak < PAT *[pa](n)tiaq; also an earlier *nts in *ramoʔ < *dzamuʔ blood*, from *ntsamuʔ (see below), while Ata. ŋ reflects an earlier *ŋg in *ŋəbuŋ wasp*, from *ŋəbuŋ (stressed form); P[roto]Li (Kadai) *voŋ < *bwoŋ < []obŋ *classifier for bee*; P[roto]M[iao] *ŋg[ai] *wasp/bee*, from PMY *ŋg[ou] < *ŋgow < *ŋgob[ŋ] < PAT *ŋgobŋ.

The Tsouic evidence for reflexes of PAN nasal/orals in even more limited, if anything, with almost no reliable comparative material bearing on the problem. Tsou and Kanakanabu occasionally show clusters (probably secondary) of this type; cf. Tsou *nsou breath*, *eansoua breath*; Tsou *mpusku 20* from a prefixed *ma/ form (cf. Sedik, above; also Kan. *mapusauu*, Saa. *mapua* < *ma/pusal); Kan. *kinti thorn*; Kan. *ŋkou monkey* (cf. Tsou *ŋuʔxou ~ ŋuʔhou ~ ŋhou*); Kan. *tsuŋkutsu bridge* (cf. Saa. *tokoso*). As indicated in the above table, Tsou regularly has initial f- for PAN (and Tsouic) *b; Tsou initial b- appears to be the reflex of PAN *mb- as well as *mp-; cf. Tsou *baʔi grandmother* (also in East Formosan: Kuv. *ba:i*, id.); IN *bayi = (m)ba[ʔ]i (Tg. *ba:ʔi mother/*

grandmother, Ja. *bayi infant*); Tsou *boki penis*, from *buki < *mpuki < *mpuNqi (see below); IN *puki *vulva* (these two body parts are often found in association). Another bit of evidence indicates that the Kan. reflex of PAN *mb- is m-; cf. Kan. *mumu breast*; Ata. *bubu?*, id. (perhaps also Sed. *bubu mother*, if not related to *grandfather* root, below), from *(m)bu(m)bu[?]; cf. also Saa. *maṅusipi alive/live* < *ma/Nqutsip; IN *ʔudip, id. < AT *(N)quzip. This scanty evidence for the labial series suggests that *mb- and perhaps *mp- are to be reconstructed at the Proto-Tsouic level, but the necessary comparative material is not at hand.

In contrast to Atayalic and Tsouic, the East Formosan languages present a sizeable body of evidence for specific reflexes of PAN nasal/orals. The evidence is best for the labial series, very scant for the velar and post-velar series, as seen in the following:

PAN *mp: the regular reflex appears to be *b; Sai. -mp- is probably secondary in *rampuz ten* (Og.-As.; cf. *lanpəz* [Tsuchida]) and perhaps also in *ʔampowa why*; Puy: Rikavong dial. has *ʔəmpok* < *ʔəmpuk *hit (with fist)* possibly related to PAN *(m)puk(m)puk, as represented by Sir. *bouchbouck* (= *bukbuk*), id.; IN *pukpuk *beat with a tool*. The *b reflex appears in Paz. *bukun the back; back/behind*, from PAN *(m)pu(ŋ)kur (cf. the Atayal cognate, above); also Pai. *vuvu*, Ami *fufu*, Fav. *boeboe* (= *bubu*) *grandparents* (perhaps also Sed. *bubu mother*, above), from *bubu < *mpumpu; IN *pu *sir* [term of respect for older males], a doublet of *ə(m)pu *grandfather/grandson* (= *grandparent/grandchild*); PO *mpu: Fl. *bu father's parents* (Bau), *mother's mother* (Nausori), also *mpumpu: Motu *bubu term of address to elders* [the normal term for 'grandparent' in Malekula and other parts of the New Hebrides]; PT *phu ~ *bu *male (human, animals, birds)*, from *(m)pu; P[roto]K[am]S[ui] (Kadai) *bu *father*, from *mpu; also Puy: Hinan dial. *tabi mortar* (= *the pounder*), Ruk. /bi:bi *wipe* (partially reduplicated form); IN *ta(m)pi *remove dust and chaff, winnow* (NgD. *pound rice*); PEO *ta(m)pi: Fu. *ta/tafi sweep* (Demp. *cleanse*), *tapi wash* (Demp.), Sm. *tafi sweep, ma/tafi wiped away* (Demp.), *tapi wipe off* (Demp.); PT *wi *fan*, from *(bi)bi < *[ta]mpi/mpi (cf. Rukai); Dioi pi (l.t.) (*comp.*) *fan*, from *bi < *mpi; PKS *bi: Mak *pəi* (l.t.) *fan*, *pəi pəi winnow (rice)*, from [ta]mpi and *[ta]mpi/mpi; P[roto]Y[ao] *peɪ *to skim off [rice water]* (Highland Yao), from *pi < *[ta]pi; also Ami *maʔfar* [< *ma/q[ə]bar], Fav. *mabart* [app. = *maʔbar] *fly* (Thao has *marfað* < *ma/r/ba[R]); IN *hampa[r] = *[ʔ]ampa[ɣ] *spread out, stretch out* (Ml. *hampar spread out (as mats, carpets)*, *hampar/an carpet*; Ja. *hampar (spread the wings =) swoop (birds)*; Chamorro *gwafag mat* [Dahl cit.]); PEO *ʔempa (from a vowel doublet; cf. Ami): To. *ʔe/ʔepa spread out*, Sm. *epa mat*, from

PAN *q[a]mpa[R]. In addition to the above, the *b reflex also appears in East Formosan (Ami Pai. Ruk. Paz.) *(ta)balana(n) *arm/armpit/shoulder/wing*, from *(ta)mp/al/ana(/n), also *balanalan *arm/armpit* (Pai. only), from *mp/al/ana/l/ana/n (cf. IN *lānen *forearm*, app. from the reduplicated root through stress reduction [*a>ə] in the final segments); N. Thai *vīaŋ *hand*, from *pwīaŋ < *[t]paŋ; Laqua (Kadai) paŋ *arm*, Lati (Kadai) ta pē ~ pen *shoulder*, from *(ta)p[a]ŋ; P[roto]W[estern]M[iao] *mpaŋ *hand/arm* from PMY *mp[aa]ŋ, from *[t]ampaŋ < PAT *ta(m)paŋ[a].

PAN *mb: appears in two Saisiat entries, both with significant cognates in IN; cf. Sai. tombok (Tsuchida), tomobok (Og.-As.) (with epenthetic vowel) < *tumbuk *kill* (= *run a person through*); IN *tə(m)buk *perforate*, from *ta(m)buk (stressed form), also *tumbuk *thrust through* (Hova *perforated*) (assim. form, as in Saisiat); PEO *tompu: Fi. tobu *hole in river bed*, from *təmbu[k]; PT *ʔbuak *tube/pipe (water)/quiver/container for chopsticks* (Tho-Nung), also *hmook *quiver/tube/gun* (SW), from *hmuak; both from an earlier *ʔ(m)buak < *[t]a(m)buk < PAT *[t][a](m)buk also Sai. rimbutul *grass*; cf. IN *rumput, id.; Ong-Be (Kadai) bət ~ bot < *pot, id. < PAT *[ro](m)pot. This element also appears in Thao qumbu *snake* (app. isolated form), but it is best represented in Bunun; cf. Bun. tambo < *tambu *wet (rice) field* (app. isolated form), also the following two forms, which have IN cognates showing *m rather than the anticipated *mb: Bun. ūmbaŋ < *tumbaŋ *breathe*; IN *t'umaŋet *spirit* (Geist), from *tsumaŋ/t (unstressed suffix); PT *[h]ma[a]ŋ *imaginary evil spirit* (Ahom); N. Thai *mwaan *genie*, from *[ts]um[b]aŋ; PKS *hmaaŋ *spirit/demon/ghost* (Mak), from *s[]maŋ < *ts[]m[b]aŋ; also Bun. tomboś ~ tumbēś (assim.) *body louse*, Thao tumbus, id. (app. loan from Bunun), Sai. somäh < *tumas, id., Ami tumus ~ tomus ~ tomes *body louse/flea*, Kuv. tumes *body louse/gnat* (cf. Bunun/Thao assim.); IN *tuma *louse, clothes louse*; PT *hmat *body louse/plant louse/flea*, also *bat *kind of dog louse* (Ahom), from an original *ʔ(m)bat; PKS *hmat *flea*; P[roto]Li *m[ua]lt, id., from *[]um[b]at < PAT *pru(m)baś.² In the latter root the PT doublet furnishes support for the reconstruction of PAT medial *-mb- rather than *-m-; a third root, however, with Bunun medial -m-, must be reconstructed with *-(m)b- on the basis of the East Formosan forms: Pai. quvis ~ qovis, Puy. ʔovi ~ obi, Ruk. obisi ~ ubisi ~ ubusi [assim.], Thao qu:mis, Ami kumes ~ komēs, Bun. komis *pubic hair* (Pai. also *axillary hair*) < *(N)qu(m)bis (see below for initial); also (second. voicing < reduplication) Sai. romis < *[G]umis *beard*; Atayal has kumis *body hair/public hair/feather/down/beard*; Tsou has fusifusi < *[qu]bus/[qu]bus (cf. Rukai assim.), also the apparent doublet: muʔmuu ~ mʔumʔu *body hair/beard*, from *qumu[s]/qumu[s] (cf. Kan. mu:mus *beard*); IN *kumit'

[< *kumits] *beard*, also (second, voicing; cf. Saisiat) gumi [< *gumis], id.; PT *hmoo *pubic/axillary hair* (Shan also *beard*), from *qomiy < *qomis; Dioi mi (h.t.), from *hmi < *q[ə]mis (with unstressed vowel); also PT *m[o]m *beard* (Tho-Nung; cf. Tsou/Kan.); Dioi mōm ~ mum *body hair/beard*; PLi *miim *beard/whiskers* < PAT *qo(m)bi(t)s. In still another root medial *(m)b- must be reconstructed at the PAT level on the basis of the PMY cognate despite the lack of mb as a reflex even in Bunun (the IN cognate is lacking): East Formosan *tūmay; Tsouic *tsumay; Atayalic *k[r]umay (Sed. kumay ~ sumay) *bear*, n.; PT *hmi, id., from *qmay (*-ay > *-i after *q), also the doublet *hmiay *bear, large sp.* (Lao), from *hmyay < *qəmay (with unstressed ə vocalism); N. Thai *mui (h.t.), from *hmuy < *qmuay (influence from *q, as in PT) < *qumay < *[kr]um[b]ay; PKS *?muy ~ *myay, from *qumay ~ *qəmay (cf. the PT doublet); Li (White Sand) moi; PMY *krop < *krup < *krub[ay] < PAT *kru(m)bay. Three East Formosan roots must be reconstructed with *mb or *(m)b on the basis of comparisons with IN and/or Atayalic: Paz. muta:mak *cut (person)*, from *m/tambak; IN tēbak *chopping knife* (Tg.), *to clear forest* (= *chop down trees*) (TB.), from *tabak (with stressed vowel); PT *vak *cut/chop/mince*, from *[]bak < PAT *[t][a](m)bak; also Ami kahmmau ~ kahmau ~ dahmau ~ ahmau *light (weight)*, from */h[ə]mbaw; Ata. lahbaō ~ ləhbaō < */h[ə]baw, id.; PT *?baw ~ *[h]maw (Ahom), id. < PAT *h[ə](m)baw; also Sir. mani < *mali[s], Kuv. balis, Thao baliθ *iron*, from *(m)balis (with 'irregular' final, possibly through assimilation to the front vowel, and a likely loan from Atayalic); Ata. baliq < *ba[x]liaq *iron/metal*; IN *bat'i = *(m)bat'i, id. (Hova basi *musket*, although Dahl considers this word a loan), from *(m)bakli(aq); also (doublet with unstressed vowel) *bat'i (Hova vi *iron*); PEO *pesi: Fi. vesi *name of a spear*; PT *hleak < *hliak, id. (second. vowel shortening before original *-q); N. Thai *mwa, id., from *mba[h]liak; PKS *qhlet < *qhliak, id. (cf. Thai); Lakkia (Kadai) khyək, id., from *m[]khyak < *mb[a]khliak; PMY *hliā?, id. < PAT *(m)baxliaq; cf. also the Formosan forms for *banana*: *bulibuʔ (Paz. Sed.), *b[u]li- (Kuv.), *bulbul (Pal. Puy. Ruk. Bun.), *ta/bulbul (Kan. Saa.), *bulbil (Sir.), *bilbil (Thao) and *bilpil (fav.), from *buli/buli (with varying degrees of vocalic assim.), perhaps from an earlier *mpuli/(m)puli (cf. the Fav. form), bringing these Formosan forms in line with IN *pun[t]i [< *puniti < *pulipli < *puli/puli], id., and PT *pli *banana flower/bud* < PAT *p[u]li/p[u]li. Finally, an initial *mb- with epenthetic vowel (cf. Sai. doublet for *kill*, above) is apparently represented by W. Ruk. movoroko *monkey*, from *mbu[ɣ]uk < *mbə[ɣ]uk (assim.); IN *bə[r]uk = *bəɣuk, id. (Demp: Ml. bēru? NgD. beruk; add Old Ja. wruk, Busang veruk

and [metathesis] Kadazan gobuk, Timugon gabuk); Ong-Be (Kadai) ma-lu, id. (not analyzed); PLi *nuk, id., from *mruk < *mbruk; Laqua (Kadai) tok, id., from *prok < *br[u]k < PAT *(m)b[ə]yuk. The occasional appearance of *m rather than *mb as a (reconstructed) reflex in IN or Formosa (*spirit, louse, body hair, bear*, above) remains a problem, but both IN and PEO (PPN) appear to have *m as a reflex for PAN *mb and even *mp (apparently via *mb) in rare instances; cf. IN *baliw *change* (*Veränderung*): Tg. baliw *deranged* (= *altered mind*), maliw *alteration* (*Verwandlung*), a doublet from *mbaliw; IN *pu(n)dul = *(m)pu(n)dul *cut off* (Hova mundru), also *putul (app. for *putul) *break off/cut off*; PPN mutu *cut off/ended*, from *mbutu[ɪ] < *mputu[ɪ]; PT *toon *castrate* (Shan also *break off the head of a plant*), from *[ɔton < PAT *[(m)p]otoɪ; IN *pat'aŋ *pair*; PPN *maasana *twin*, from *mba(a)sana < *mpasaŋ/a; PT *sooŋ *two* (perhaps via back-loan from Chinese) < PAT *[(m)pa]ts[a]ŋ.

PAN *nt: Bunun and Saisiat maintain this element in one well-represented root: Bun. bintoqan, Sai. bintö?än, Pai. vituqan, Puy. vitu?ən *star* (cf. also Paz. bintun < *bintul; Bullock [1874] cites bintul; app. an infix form); IN *bi[t]u?ən. The nasal feature appears in IN as well as Formosa in the following: Kuv. bu:tis *calf*, Thao buntuθ < *buntis (assim.) *lower leg*; IN *buntit' *shin* (NgD. buntis), also (with unstressed vowel) *bə(n)tit', id. (Ja. wəntis, Ml. bētis) and (assim. form; contrast Thao assim.) *bitit' *calf* (TB. bitis, Hova vitsi) < PAN *bu(n)ti(t)s; Thao also has bantaθ *leg*, an apparent loan from Bun. bantaś *leg/foot*, possibly cognate with the above root. Thao has additional forms with medial *-nt-; cf. Thao tantu:qas *older brother* < PAN *tuqas *old/elder*; Thao muntu:muq *lie/recline*, contrasting with Thao mu:taq *vomit* (Bun. motah, Pai. mut'aq, Puy. mutaq, Ami ma?otaq < *m/utaq); cf. also Bun. śibuntus *pull*; Bun. parantahon *tie*; Sai. komontotol < *k/muntutul *push* (see below). The anticipated *nt > *d shift appears to be rare; cf. Paz. dulut *tail*, from *ntulut < *(bu)nt/ɪ/ut; IN buntut, id.; PT *sut *end*, from *t/r/ut < *[bu]t/ɪ/ut; PKS *[ɔt (h.t.) *tail*, from *[ɔnsot < *[bu]nt/ɪ/ut; Ong-Be (Kadai) tu?, id., from *sut; PLi *sut, id.; also Sai. komontotol *push* (above), Paz. mudu:dun, id., apparently from *muntu:dun < *muntu:tul (assim.) but note Yami padundunun, id., possibly of similar origin (< *pa/ntuntun/n < *pa/ntuntul/n).

PAN *nd: exceedingly rare in Formosa: cf. Thao mundada:n *walk* (cf. Bun. mudada'an); Bun. ?indin *this*, probably of secondary origin. Three roots, all with the *d ~ *n type of alternation, require reconstruction with *(n)d: W. Ruk: Maga dega, Tona nega, Mantauran neka (also

Thomson [1873] *denga* *one*, from **(n)də(ŋ)ga*; PT **(h)nŋ*, id., from **()ndŋ* < **()ndyaŋ* < PAT **() (n)da(ŋ)g[a]*; also Pai. *budas* ~ *vudas*, Sai. *bunaz* ~ *bonaz*, Thao *bu:naɪ*, Paz. *bunat*, Fav. *bonnad*, Bun. *da'as* < **bu(n)daj sand*; PT **draay*, id.; PLi **phew*, id., from **bəw[draj]*; Latl *ñā*, id., from **nd[r]ā[j]*; < PAT **bəw(n)draj*; Sir. /*lamag*/ *burning* (Dutch *brandt*), Fav. *ramal burnt field*, Ami *namar fire* < **(n)damay* = **(n)damay resin/light/torch*; PPN **marama light*, **malama moon/month* (o. *shine*), both from **ma/(n)dama[ɣ]*; PT **hmay burn* < PAT **[(n)da]maR*.

PAN **nt*: represented by *d* in Kuvalan and by *ɬ* in Thao, which regularly has *θ* for East Formosan **t* (= C [Dyen]), from an earlier cluster (CL): *θaw man*, *θa:qi excrement*, *θu:may bear*, *ma:θa eye*, *ma:θay die*, *ku:θu head louse* (> *s* before *m*: *smaqis sew*); contrast Thao *ɬari:ŋa ear*, from **ntaliŋa*; IN **taliŋa*; PEO **(n)taliŋa*: Fi. *dalina*, Sa. *'iline*; PKS **qha* < **qh[r]a[liŋa]* < PAT **(N)qraliŋ[a]*; also Thao *ɬa:ri taro*, Kuv. *dari sweet potato* (Taintor 1874), both from **ntali* (Ami *tali*, Bun. *taye*, Buk. *ta'i taro*; also Atayalic: Sed. *sari*, id.); cf. IN **talet'*, id., probably from **talit'* < **talits* (with unstressed **i* > **ə*) but the final is irregular in any event; PEO **ntalo(s)*, id.; PMY **ndoi yam* (also *edible tuber, potato* and *sweet potato*), from **ndawi* < **ndali* (**l* > *w* is regular MY shift), with final corresponding to the Formosan form, from PAT **(m)p[r,l]ali* ~ **mb[r,l]ali*.

PAN **nts*: represented by East Formosan **dz* (and Ata. *r* < **dz*), on the basis of the following PMY correspondence: Pai. *d'amuq* ~ *d'amoq*, Puy. *damok*, Sai. *ramo*, Paz. *damu* < **dzamu[ʔ] blood*; Ata. *ramo?* < **dzamu?*, id.; PMY **ńcyaa*, id., from **[]ntsaam* (palatalized) < PAT **()ntsa[a]m[uʔ]*.

PAN **ns*: appears in two Bunun forms, one with an excellent IN (and PT, PMY) correspondence; cf. Bun. *?insunun push* (app. isolated form); Bun. *binsah* < **binsaq*, Sai. *biŋsi* < **bi[n]sa[q]* (assim. backwards) *seed*; IN **binl?* = **binhi?* (Tg. *binhi?*), id., from **binha?* (assim. as in Saisiat), also **beni?* (doublet with unstressed vowel); PT **van* ~ **ban*, id., from **b(w)an* < **(ba/)ban[saq]* < **bin[saq]* (partial redupl. and assim. forwards; contrast Sai. and IN); PY **sa?* *sesame* (the seeds *par excellence*), from **[bin]saq* < **PAT *()binsaq*.

PAN **nz*: initial **(n)z-* is to be reconstructed for East Formosan for the following root: Pai. *zalum*, Sai. *ralom*, Paz. *dalum*, Thao *θa:ðum*, Bun. *danom* (*n* < **l*), Kuv. *ranum* (*n* < **l*), Sir. *salom water*, from **zalum*, but Ami *nanom* < **nalom* (assim.) < **nzalom*, Puy. *zanum* < **ñzalum* (assim.); IN **[dd]anum* = **[z]anum*, id.; PPN **lanu liquid/fresh water*, from **ndanu[m]*; PT **nam* ~ **naam water*, from **nza(l)am* (regular intervocalic loss of **l*) < **nza(l)om* (vocalic assim.); Dioi *ram*, from **nram* <

*nz(a)lam; Lakkia (Kadai) num (without assim.); PLi *nom (also without assim.) < PAT *() (n)zalom.

PAN *ŋk: rare in occurrence, the few available examples found either in isolates or in secondary developments; cf. Bun. taŋkinuð *back/behind*; Sai. riŋkelan *thigh*; Sai. miŋkoriŋan *woman* (cf. korkoriŋ *child*); Puy. taŋkar(/kar) *dry* [field]; Puy. ʔiŋku < *in-ku I (cf. ʔinu < *in-su *thou*, ʔinmu *you*). There is some evidence for the anticipated *ŋk > g shift; cf. Sir. vugot *bind*, from *bugu[ts] < *buŋku[ts]; IN *bəkət' = *bəyket' *bundle* (Tg. bigkis *bundle*; *bound, to tie*, Ml. bėrkas, TB. borhos *bundle*), from *bəyket' (assim. backwards), also *buŋkut' *bundle* (assim. forwards); PEO *po(ŋ)ko: Sa. hoʔo *to bind magically*, i/hoʔo ~ hoko *bundle*; PT *koot *embrace/enlace*, from *okot < *[b]okots; Ong-Be (Kadai) kət (l.t.) *tie up/enlace/knot*, from *gət < *oŋkot < *[b]oŋkots < PAT *[b]ə[ɣ][ə]-(ŋ)kots; also Pai: Kulalo t'akit (Dahl cit.), Makazayazaya (Ferrell) t'agit *knife/sword*, from *ta(ŋ)kits; cf. IN *ta(ŋ)kit' *ward off* (NgD. taŋkis *parry*, takis *push away*); PT *kiit ~ *kiat (Siamese/Lao) *hinder/prevent*, from *[ki(y)at; also *geet (Shan) *head off/thwart/hinder/obstruct*, from *ŋkeet []*ŋkiat < *[ta]ŋkiats < PAT *[ta](ŋ)ki(y)ats.

*ŋg: see above (*wasp/bee* under Atayal, also *one*); no certain examples of the anticipated *ŋg > *ŋ shift for East Formosan have been uncovered.

*Nq: extremely rare in East Formosan; cf. Bun. madaŋqas ~ madaŋxas ~ madaŋhas *red* (app. isolated form). The regular shift appears to be to k, rarely to ŋ (cf. Saa. *live*, above); cf. *(N)qu(m)bis *body hair/beard* (above); also Aml: Tauran poki *vulva*, from *puNqi, as shown by the doublet: Bun. poʔo < *puqu < *puqi (assim.), id. (Tsou boki *penis* < *mpuNqi, above); IN *puki *vulva*; PT *hi, id., from *hNi < *hNGi, from *hNqi (second. nasalization) < *[pu]Nqi (second. aspiration); KS *hñi: Mak ñei (h.t.), from *hNi (as in PT); PM *b[ou]? ~ *bi? (White Miao), from *buq[i] ~ *biq[i] (second. voicing and vocalic assim.; contrast the Bunun assim.); also Pai. tsaqi, Puy. taʔi, Aml taʔe, Sai. säʔi, Thao ʔa:qi, Fav. tshe < *taqi *excrement* (Tsouic *taqi), but Ruk. tsaki ~ tsake, Bun. take, Paz. saik [< *saki], from *taNqi; also Sir. taiŋ [< *taŋi], from *taŋgi < *taNqi (second. nasalization; cf. Saa. *alive/live*, also PT *vulva*, above); IN *taʔi = *(n)taʔi *excrement*, but Kalagan takki, Singhi toki (cited by Blust 1973), from *taNʔi = *taNqi, with *Nq > k as in East Formosan; PEO *(n)taʔe, id.: Fi. de, Sa. ae; PT *khi *excrement/defecate* (irreg. for *xi < *qi); N. Thai *yai *excrement*, from *Gay < *Nqay < *[]aŋqi; PKS *()qe < *()qay, id.; Lakkia (Kadai) kwei (l.t.), id., from *[G]ei < *[Nq]ei < *[]aŋqi; Ong-Be (Kadai) kai (l.t.) id., from *[G]ay (as in N. Thai); PLi *hay,

If the above material is reviewed, it will be noted that the evidence for correspondences in nasal/orals from outside Formosa comes from a great variety of sources: IN ('hibiscus', 'grandmother', 'cut/chop down', 'leg/calf'); IN and PEO ('fly'); IN, PEO and PT ('grandparent/male/father', 'winnow/wipe/mortar', 'kill/thrust through/hole/tube'); IN and PT ('seed'); IN, N. Thai, Lakkia and PMY ('excrement'); PEO ('back/behind', 'ear'); PPN ('work field/field/sweet potato'); PPN, PT, PKS, Lakkia and PLi ('water'); PT ('body louse/flea', 'light', 'ward off/knife'); PT and PKS ('vulva'); N. Thai ('iron'); PKS ('tail'); Ong-Be ('bind/tie up/bundle'); PLi ('monkey'); Latl ('sand'); PMY ('arm/armpit/shoulder/wing', 'blood', 'speak/language/crow'). Within the East Formosan group, as shown by the table below (which excludes 'bear', see above), the oral/nasals are best maintained in Bunun, Saisiat and Thao. There are alternative reflexes in several instances, probably to be explained at least in part by various conditioning factors, e.g. PAN initial *Nq- > Sir. k- (*yellow*) but medial *-Nq- > Sir. -ŋ- (*excrement*), with secondary nasalization.

FORMOSAN REFLEXES OF PAN NASAL/ORALS

[illegible]

Table 5 (cont.)

Paz.	b	m	{ nt d	n	-	d	-	-	-	k
Pa1.	b/v	-	-	-	-	d'	-	-	g	k
Am1.	f	m	-	n	-	-	-	n	-	k
Kuv.	-	m	-	-	d	-	-	-	-	-
Sir.	b/v	m	-	-	-	-	-	-	g	{ k ŋ
Fav.	b	-	-	n	-	-	-	-	-	-

NOTES

1. Sources as in Benedict 1975, principally Ogawa and Asai (1935) (in Japanese), with normalized phonetic orthography, and Ferrell (1969), which includes the citations from early sources; IN forms cited after Dempwolff (1930), with modifications by Dyen (notably ? for medial and final h) and the occasional indications of nasal/orals, especially *(m)b for *b (almost always on the basis of b rather than v as a reflex in Javanese or Hova); PEO reconstructions along the lines suggested by Biggs (1965); PT and PMY reconstructions as in Benedict 1975. Abbreviations: AN Austronesian; AT Austro-Thai; Ata. Atayal; Bun. Bunun; Demp. Dempwolff; E. Eastern [Rukai]; Fav. Favorlang; Fi. Fiji; Fu. Futuna; h.t. high tone; IN Indonesian; Ja. Javanese; Kan. Kanakanabu; Kuv. Kuvalan; l.t. low tone; Ml. Malay; N. Northern [Thai]; NgD. Ngaju-Dayak; Og.-As. Ogawa and Asai (1935); Pai. Paiwan; PAN Proto-Austronesian; PAT Proto-Austro-Thai; Paz. Paze; PE Proto-Eastern [Miao]; PEO Proto-Eastern Oceanic; PKS Proto-Kam-Sui; PLi Proto-Li; PM Proto-Miao; PMY Proto-Miao-Yao; PN Polynesian; PPN Proto-Polynesian; PT Proto-Thai; Puy. Puyama; PWM Proto-Western Miao; PY Proto-Yao; Ruk. Rukai; Saa. Saaroa; Sai. Saisiat; Sed. Sedik; SEP Southeast Papua; Sir. Siraya; s.t. same tone; SW Southwest [Thai]; Tg. Tagalog; To. Tongan; W. Western [Rukai].

2. A similar but distinct root is represented by Bun. *tumbi* ~ *tumbe flea/bedbug*, from **tumbi*[q] (irreg. loss of final); cf. Puy. *tatumuq*, Pai. *tsatsumuq bedbug*, from **tatumbiq* (with vocalic assim.); also Ata: *Squliq sumiq*, *Ci'uli lumi?*, Sed. *tsumiq body louse*, from **CLumbiq* (CL= consonant cluster) < *(CLa(CLumbiq; no MY or Kadai cognates of this root have yet been uncovered.

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